

Letter to the Editor

Severe heatwave in Japan

Dear Editor,

Despite adequate treatment, heatstroke is often fatal.¹ The incidence of heat-related deaths is increasing with climate change and predicted worldwide increases in the frequency and intensity of heatwaves.² Between July 14 and July 24, 2018, the maximal and minimal temperatures throughout Japan reached unusual highs accompanied by extreme humidity, leading to a notable surge in victims of heat-related death nationwide. In fact, Japanese hospitals experienced an unprecedentedly massive admission of heat-related disorders (particularly heatstroke) and deaths. During this period, the mean wet bulb globe temperature (an index of environmental heat stress) of six fixed-point observation cities (Tokyo, Osaka, Nagoya, Hiroshima, Niigata, and Fukuoka) reached 30.9–31.5°C. This is believed to be largely responsible for the deadly epidemic of heatstroke

(Fig. 1). In the city of Kumagaya, about 40 miles northwest of Tokyo, the mercury reached 106°F (41.1°C) on July 23 – the highest temperature on record in Japan. Within the 11-day period, there were 34,147 cases of heat-related emergency transportation throughout Japan, or roughly 64.4% of the 52,984 cases between May and September of 2017. Of the 34,147 cases, approximately 46.8% ($n = 15,994$) were aged 65 years and above, 2.9% ($n = 997$) were diagnosed with heatstroke (regarded as the most severe heat-related illness), and 0.3% ($n = 99$) were found clinically dead upon the arrival of emergency medical service.³ In response to this catastrophic heatwave, within a few days of the onset of the sharp increase in heat-related emergency transportations and deaths, the Japanese Association for Acute Medicine issued advisories about the scorching heat, urging people to take measures to avoid heatstroke.⁴

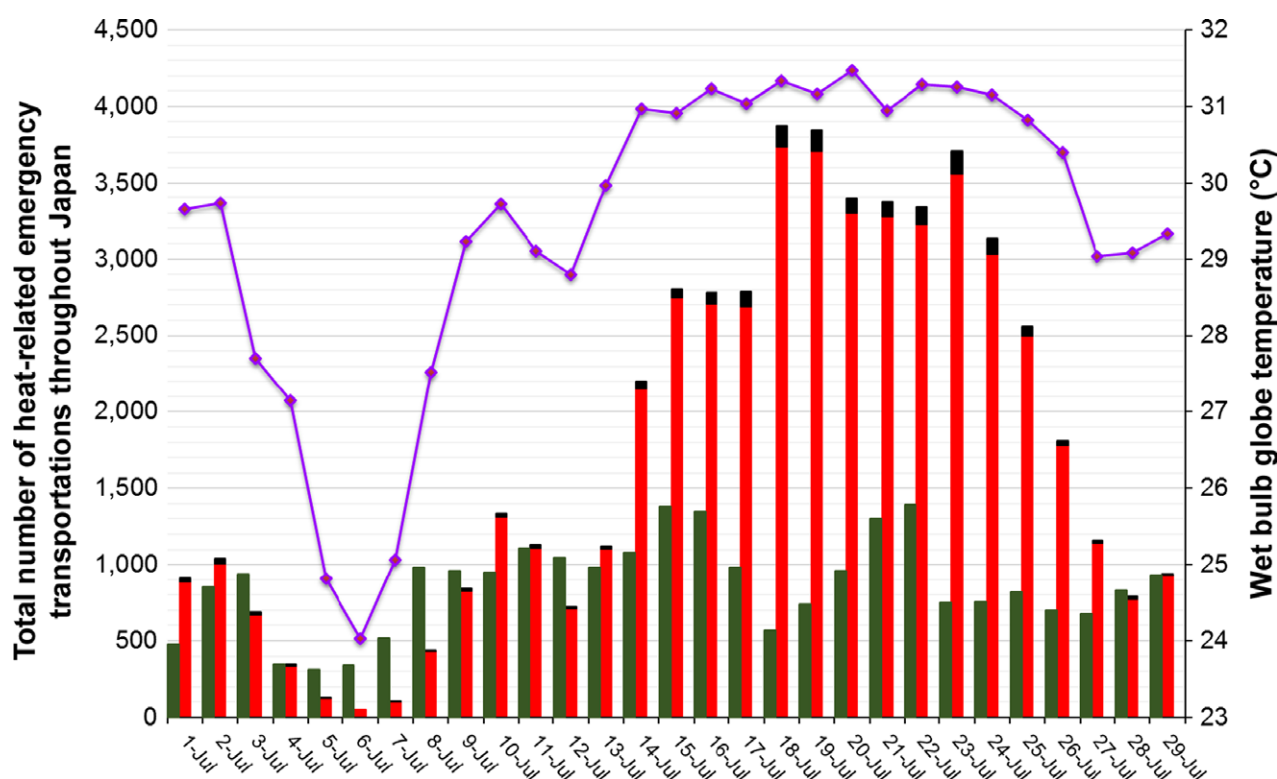



Fig. 1. Total numbers of heat-related emergency transportations throughout Japan in July 2017 and July 2018. Green and red (plus black) bars indicate the number of patients with heat-related illness who were transferred by ambulance in July 2017 and July 2018, respectively. Black bar indicates patients with severe heat-related disorders or cardiac arrest on arrival of emergency medical staff at the scene. Purple line indicates the mean wet globe temperatures of six fixed-point observation cities in 2018 (Tokyo, Osaka, Nagoya, Hiroshima, Niigata, and Fukuoka).

Although no sector of the population is considered exempt from the risks posed by heatwaves, previous research has shown that elderly people (aged >65 years), younger children, individuals with pre-existing medical conditions, those with low socioeconomic status (e.g., low education, low income, and social isolation), and those with poor access to adequate cooling systems were particularly vulnerable to heat-related illness. Extrinsic vulnerability factors include certain material conditions (e.g., air conditioning) and urban design (e.g., heat island effect and population density).⁵

The development of national and regional strategies for reducing the health impacts of heat on vulnerable populations or territories – such as a nationwide campaign or urban environmental improvements – is an urgent public health need. Additionally, further recognition and characterization of heat-related illness are essential for establishing fundamental evidence of this “preventable” illness.

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Animal studies: N/A.

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